

# Effectiveness of Remedial Sessions in Improving the Numeracy Level of the Identified Grade 9 Non-Numerates Students

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**Abstract** —Regional Memorandum No. 279, series 2019 entitled “Institutionalization of the Conduct of the Unified Numeracy Test” and Regional Memorandum No. 280, series 2021 which is the Reiteration of Regional Memorandum No. 279, s. 2019 Re: Institutionalization of the Conduct of the Unified Numeracy Test. Both are requiring the schools in the region to conduct pre and post numeracy tests to all students enrolled in the current school year to determine base line data for the conduct of intervention program. this assessment tools are designed to achieve critical thinking and problem solving which are needed to emphasize in the teaching of Mathematics of which the Department of Education aims to develop learners who are numerates and who can apply numeracy skills for various purposes. The result of the pre-test shows that most of the Grade 9 students are identified non-numerates. To address this problem, the researcher conducted this quasi-experimental research to evaluate the effectiveness of remedial sessions, as an intervention in improving the numeracy level of these identified non-numerates. After a series of activities, practice tests during remedial sessions, the study revealed a significant difference in the tests conducted before and after the conduct of remedial sessions. Thus, remedial sessions if conducting religiously and with the participation, cooperation and attention of the students, their performance will really improve.

**Keywords** — *Effectiveness, Remedial Sessions, Numeracy Level, Improving, Identified Grade 9 Non-Numerates*

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## I. Introduction

Numeracy refers to having the ability to apply mathematics in real life situations (National Numeracy, 2014). A person is said to be numerate if he understands the essence of numbers and has the skills to use mathematical approaches in all aspects of life. The skills needed to show high numeracy of a person are being able to interpret data, charts and diagrams, process information, solve problems, check answers, understand, and explain solutions, and make decisions based on logical thinking and reasoning.

On the other hand, Regional Memorandum No. 280, series of 2021 entitled “Reiteration of Regional Memorandum No. 279, s. 2019 Re: Institutionalization of the Conduct of the Unified Numeracy Test” identified highly numerate if the student got correct answers in the 4 sub-tests (addition, subtraction, multiplication and addition) while moderately numerates if the student got one (1) or more mistakes in any of tests4 sub-tests and non-numerate if the student got a score of zero in any of the 4 sub-test. The identified highly numerate students will no longer be needing intervention but enhancement activities. On the other hand, students identified as moderately numerates will be provided with enrichment activities in the sub-tests which incurred mistakes and non-numerate students will be provided with intervention. As part of the curriculum, all schools must conduct numeracy tests for all students from Grade 1 -12 and tools are provided to each of the key stages. The tools are crafted and distributed to the field together with the guidelines on the conduct of the test.

As in the case of Villaba National Comprehensive High School, the researcher, being the Math teacher in Grade 9 conducted numeracy test during the 1<sup>st</sup> 2 months of the opening of classes. It was found out that among the 49 students enrolled in the class, 18 are identified non-numerates while 31 are moderately numerates. This data is quite alarming because it is expected that the competencies involved in the test have been taught in the previous grade levels. Knowing this, the researcher had decided to provide an intervention program to address the need of the students to improve their numeracy and academic performance in Math.

Academic performance of the students is the basis on how teachers start remediation activities through interventions and strategized methods of increasing student retention of learning. Jackson (2016) found out that instructors who conducted remediation used instructional techniques that matched effective practices found in the current research literature. Everyone opts for teachers to give remediation until such time that learners are back on track. As Capuyan et al. (2019) revealed, there is a positive relationship between the previous and the current grade levels’ grades of pupils attending remediation lessons. In relation, Tseng et al. (2016) also mentioned that remedial interventions by teaching advisors had a great impact on students’ improvement of final grades.

Addressing the problem of strengthening the numeracy learning of the students would be of great help in improving the mathematical skills as well as the performance of the students in mathematics. And this is the very reason why this study is conducted to evaluate the effectiveness of remedial classes conducted to the identified Grade 9 non-numerate students. A proposed improvement plan was formulated based on the findings of the study. Thus, it is in the rationale that the researcher who is currently a Grade 9 Math teacher in the above mentioned local, would like to delve worthy research undertaking that will benefit herself, the school she is currently teaching and that of her Graduate Program she is enrolled at.

This study evaluates the effectiveness of remedial sessions in improving the numeracy level of the identified Grade 9 non-numerates students of Villaba National Comprehensive High

School of Villaba North District, Leyte Division for School Year 2022-2023. The findings of the study were the basis for the proposed improvement plan.

Specifically, this study sought to answer the following questions:

1. What is the level of numeracy performance of the Grade 9 students before the conduct of remedial sessions?
2. What is the level of numeracy performance of the Grade 9 students after the conduct of remedial sessions?
3. Is there a significant difference in the level of numeracy performance of the Grade 9 students before and after the conduct of remedial session?
4. What improvement plan can be proposed based on the findings of this study?

## II. Methodology

**Design.** This study employed the quasi-experimental research design utilizing the pre-test and post-test to evaluate the effectiveness of remedial sessions in improving the numeracy level of the identified Grade 9 non-numerates students for School Year 2022-2023. Villaba National Comprehensive High School, Villaba North District, Leyte Division is the main locale of the study. The 49 identified Grade 9 non-numerates students who are currently enrolled in the said locale are the main respondents of the study. A numeracy test for Key Stage 3 provided by DepEd Region 8 is the tool used to determine the pre-test and post-test performance of the Grade 9 students. This is a 40-item test question which students must answer with a time limit for every item. This material is used to test the numeracy level of the Grade 9 students and their speed in answering such tests. This will be conducted before and after the implementation of remedial sessions scheduled daily during vacant periods of the students. Moreover, the researcher varied and differentiated learning activities which will be used by the students during remedial sessions. After a certain topic has been discussed, paper and pencil activities will be administered to test the mastery of the students to the topics discussed. The research tools were submitted to the District Math Coordinator, Math Department Head and School Head for validation. An outline of the activities will be formulated and submitted to the authorities for checking. The materials and tools used had undergone quality assurance to the Quality Assurance Team of the District before it will be distributed for use by the students. A matrix of activities was crafted to guide the teacher-researcher on the flow of his study. This research focused on evaluating the effectiveness of remedial sessions in improving the numeracy level of the identified Grade 9 non-numerates students through the pre-test and post-test and its significant difference. A Proposed Improvement Plan based on the findings of the study is the output.

**Sampling.** There are 49 identified Grade 9 non-numerate students involved in this study. These students were taken based on the result of the pre-test on numeracy conducted by the

teachers in the school. The research instruments and interventions were administered face-to-face with consent from the Local IATF and strictly following the prescribed Health Protocol during the limited face-to-face classes.

**Research Procedure.** The researcher prepared the research design and tools utilized in the study. Approval and recommendation from the Panel of Examiner of the Graduate Studies was sought. A letter request to conduct this study was forwarded to the Office of the Schools Division Superintendent. Upon approval, permission from the District Supervisor and School Head was secured before the actual gathering of data. Orientation of the participants and administration of the pre-test was done face-to-face after the approval of the permit from the parents of the respondents. After accomplishing the pre-test, intervention was given within four weeks. The implementation of remedial sessions provided with interactive and relevant activities was emphasized in the study. After the four-week intervention, the post-test was administered. Results of the tests were collected. Data were tallied and submitted for statistical treatment. Analysis and Interpretation of Data. Making of Proposed Improvement Plan followed.

**Ethical Issues.** The researcher properly secured the permission to conduct the study from the authorities through written communication. In the formulation of the intervention materials that was used in the study, the use of offensive, discriminatory or other unacceptable language was avoided. The respondents' names and other personal data were not included in this study to protect their privacy. Participation of the respondents was also voluntary. Orientation was conducted for the respondents with their parents. In the orientation, issues and concerns were addressed and consent to be included in the study were signed. The researcher-maintained objectivity in analyzing and discussing the results. All authors whose works were mentioned in this study were properly quoted and were acknowledged in the reference.

**Treatment of Data.** The Simple Percentage was employed to evaluate the numeracy level of the Grade 9 students before and after the implementation of remedial sessions. **t-Test of Mean Difference** was used to determine the significant difference in the numeracy level of the Grade 9 students.

### III. Results and Discussion

**Table 1**  
**Numeracy Level of the Grade 9 Students Before the**  
**Implementation of Remedial Sessions**

Score Range	Description	PRETEST	
		Frequency	%
33-40	Excellent	0	0
25-32	Very Good	7	14
17-24	Good	33	68
9-16	Fair	9	18
0-8	Poor	0	0
Total		49	100
Weighted Mean		19.86	Good

Table 1 presents the numeracy level of the Grade 9 Students before the implementation of remedial sessions. It was revealed on the table that among the 49 Grade 9 students, 7 or 14% got a score of 25-32 which is interpreted as very good. This means that these students possess background knowledge on numeracy. They have mastered some of the skills in numeracy, yet they still need to have additional time to be given to the students for enhancement activities to be provided to the students to achieve the desired goals. This implies that despite having achieved very good numeracy level, still they need intervention activities and materials to master all the skills in numeracy. Moreover, there are 33 Grade 9 students of 68% got a score of 17-24 which is interpreted as good. This means that only a few pupils have mastered the numeracy skills for the grade. This implies that more intervention activities and enough time to master the skills must be provided to the students. Further, the table shows that there are 9 Grade 9 students or 18% got a score of 5-8 which is interpreted as fair. This means that these students failed to answer all the numeracy tests given. They still lack knowledge of the four fundamental operations used in every question which means that when critical or big numbers are to be solved, students already find difficulty in accomplishing such. This implies that students are beginning to grasp the basic concepts on the four fundamental operations and are still adjusting with the time constraints in accomplishing the activity. Finally, the table shows the level of numeracy performance of the Grade 9 students before the implementation of remedial sessions to identified non-numerates has a weighted mean is 19.86 which is interpreted as good. This means that the grade 9 students have limited understanding in numeracy concepts. They did not do very well in the test conducted to them. It shows that they need remedial sessions where these students can focus on learning numeracy skills. This implies that these pupils should be provided with remediation activities, appropriate learning materials and discussion on the concepts of numeracy. Remediation sessions are activities provided to the students after classes or during their vacant time. During this time, the teacher contextually discusses the concept and provided remedial activities for practice.

**Table 2**  
**Numeracy Level of the Grade 9 Students After the**  
**Implementation of Remedial Sessions**

Score Range	Description	POST-TEST	
		Frequency	%
33-40	Excellent	33	67
25-32	Very Good	16	33
17-24	Good	0	0
9-16	Fair	0	0
0-8	Poor	0	0
Total		49	100
Weighted Mean		34.90	Excellent

Table 2 presents the numeracy level of the Grade 9 students after the implementation of remedial sessions. It was revealed on the table that among the 49 identified Grade 9 non-numerate students, 33 or 67% got a score of 33-40 which is interpreted as excellent while 16 or 33% got a score of 25-32 which is interpreted as very good. This means that the remedial sessions conducted to the Grade 9 non-numerate students are effective in improving their numeracy performance. This implies that having a focus in discussing a certain topic and with the varied and differentiated activities for practice helps the students to achieve a positive numeracy level.

Finally, it was revealed on the table that the numeracy level of Grade 9 identified non-numerates after the conduct of remedial sessions has an average weighted mean of 34.90 which is interpreted as excellent. This means that remediation sessions have somehow helped improve the numeracy performance of the Grade 9 students. This implies that the activities, instructions, one on one tutorial, and practice activities are significant to the students' need to improve their numeracy performance. As cited by Ancheta (2008), for effective learning to take place, learners should be provided with varied activities. It is apparent that the teacher's role is to be creative and resourceful to be able to tailor instructional materials and instructional activities to the needs and capacities of the learners. What the learners learn depends largely on the skill and ability of the teacher to prepare and use such materials to capture the learners' attention, spark their interest and develop skills.

**Table 3**  
**Test of Difference Between the Level of Numeracy of the Grade 9 Students**  
**Before and After the Implementation of Remedial Sessions**

Aspects	Test Scores		Computed T	Critical T	Decision	Interpretation
Grade 9 Students	Pre	19.86	4.664	1.033	Reject H <sub>0</sub>	Significant
	Post	34.90				

Table 3 presents the test of difference between the level of numeracy of the Grade 9 identified non-numerates before and after the implementation of remedial sessions. It was revealed on the table that the computed value or t of 4.664 is greater than the critical value of t of 1.033, so null hypothesis is rejected. This means that there is significant difference in the level of numeracy of the Grade 9 identified non-numerates before and after the implementation of remedial sessions. The level of numeracy before the intervention of 19.86 has increased to 34.90 after the conduct of remedial sessions. This implies that remedial sessions conducted to the Grade 9 non-numerate students have helped improve their performance. A remedial class is always an impressive way to solve this common problem. That is why Thilges and Schmer (2020) provided a concept analysis of formal remediation wherein he established a framework for defining the concept, developing measurable outcomes, and describing when to implement the intervention. This is important so that there is a consistent and systematic way of delivering the remedial class. However, Caras (2019) states that there is still a need for direct instruction for students necessary to connect experiences knowing that they are learning. Wright (2011) found out that understudies in remedial course were probably going to be progressively fruitful when an assortment of instructional technique and activities was utilized. Moreover, as Capuyan et al. (2019) revealed, there is a positive relationship between the previous and the current grade levels' grades of pupils attending remediation lessons.

#### IV. Conclusion

The study revealed a significant difference in the level of numeracy of Grade 9 identified non-numerates before and after the implementation of remedial sessions. Conducting remedial sessions for the students and provision of additional learning support materials, activities and practice tests is effective in improving the numeracy performance of the students. Thus, remedial sessions should be conducted for struggling and low performing students.

#### V. Recommendations

1. The proposed improvement plan formulated should be utilized.
2. Teachers should produce remedial activities to address the needs of the learners for the improvement of their performance.

3. Teachers should implement remedial sessions for the students in need to address their learning gaps.
4. Teachers should provide alternative learning support materials to help them understand the concept correctly and be able to apply the knowledge gained.
5. Teachers must attend training or LAC sessions on the production and crafting of learning resource materials for the remedial sessions to be conducted to the students.
6. Teachers must attend training on teaching strategies and methods in teaching numeracy.
7. Teachers should revisit the guidelines and tools in assessing the numeracy performance of the students.
8. School Heads should allocate the budget for the procurement of office supplies to be used in the formulation of remedial activities and resources for remedial sessions.
9. School Heads should spearhead in the crafting of training design and LAC plan for trainings and LAC sessions for the improvement of teaching-learning process of teachers most especially in the improvement of learning resource materials to be used during remedial sessions.
10. School Heads should have a database of students needing remedial sessions and provide appropriate plans to address their learning gaps.
11. School Heads should provide technical assistance to teachers in terms of teaching numeracy skills.
12. School heads should monitor the conduct of remedial sessions and provide technical assistance for the improvement of its implementation.
13. School Heads should regularly monitor the teaching-learning process of teachers.
14. School Heads should maximize the time in providing appropriate technical assistance based on the needs of the teachers in teaching numeracy.
15. School Heads should submit the crafted learning resource materials for remedial sessions for quality assurance.
16. School Heads should encourage and provide technical assistance for the crafting of innovations and research based on the intervention provided to improve the performance of the pupils; and
17. Future researchers should replicate this study to include different locales and include different variables aside from the mentioned in this study.



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After she graduated with her bachelor's degree, she was teaching for a year as a part-time instructor at Visayas State University- Villaba in the year 2016-2017. In the year 2018 she was hired in the DepEd and is currently teaching Grade 8 and 9 pupils at Villaba National Comprehensive High School. She also attended a series of webinars/seminars and trainings to increase her professional growth as a teacher.